TRENDS

Digital Pens Trade Ink for Wireless Link

Just when you thought your bad handwriting would never cause problems again, along comes the digital wireless pen. These high-tech styli turn handwritten notes and doodles into a digital format that can be beamed to a PC, cell phone, or personal digital assistant. From there, your scribbles can be sent around the world via e-mail.

Like with any new gadget, several industry players are vying for space in your pocket protector. **Anoto's** ***(www.anoto.com)*** approach is the most novel, employing a digital pen that works only with proprietary paper. Printed with millions of dots, each one-tenth of a millimeter in diameter, each piece of paper is a unique section of a giant map. The dots on the paper act as a graph, which the Anoto pen uses to track and store your handwriting. The company's servers then track individual pens and the part of the map that you're writing on. Bottom line? You can scribble an e-mail, then send it via a Bluetooth-enabled cell phone simply by placing a check mark on a specified part of the paper.

Anoto's digital pen relies on digital paper.

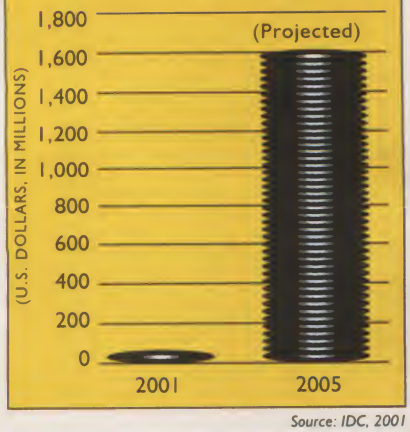
More conventional technology is employed by **InMotion's E-Pen** ***(www.e-pen.com)***. According to Monica Hamilton, vice president of business development and marketing for InMotion, the E-Pen transmits a 40MHz ultrasonic signal to a receiver that clips to your notepad or other object. You can write on any surface, and the receiver transmits your digitized handiwork to a PC or cell phone via serial or USB cable. The E-Pen will be bundled with **Microsoft's** upcoming Tablet PC ***(www.microsoft.com/tabletpc)*** and **Casio's** Personal PCs ***(www.casio.com/personalpcs)***.

Digital pens free users from paper and computer keyboards, but whether they catch on or become paperweights remains to be seen. David MacNeill, executive editor of *Pen Computing* magazine ***(www.pencomputing.com)***, cites the primitive displays of cell phones as an obstacle to the widespread acceptance of digital pens.

"Without the ability to display a penned message as a graphic, [digital pens] are useless as mobile-to-mobile communicators," he says. "Mobile [phones] will have to get bigger and better displays before this type of messaging makes sense." ***—Atticus Fisher***

Record Deal

U.S. Music Service Provider Revenue, 2001 and 2005



Source: IDC, 2001

Despite the widespread Net piracy of digital music, the record labels will make a lot of money online in the next four years. Although revenues for label-backed and independent fee-based music service providers (MSPs) are negligible now, IDC Research, based in Cambridge, Mass., expects them to grow to $1.6 billion by 2005. IDC's study also indicates that the majority of paid MSPs will have subscription-based business models.

Lunchtime@kitchen-fridge.com

Your next refrigerator may add some Java to your iced coffee, or put some downloads in your dairy.

LG Electronics ***(www.lge.com)*** will soon release its networked refrigerator in the United States. The fridge, which has been available in South Korea since last year, lets users download recipes and watch television, thanks to a 15-inch LCD screen and Ethernet connection. If dinner isn't coming out quite right, you can use the fridge's built-in video camera to open a videoconference to your mom's kitchen.

Other manufacturers are dabbling with high-tech kitchen appliances, but it's not clear if consumers are ready. "The thing that's most responsible for holding up the high-tech kitchen is broadband," says Stephen Duthie, a spokesman for **Whirlpool** ***(www.whirlpool.com)***. "Manufacturers have come to realize that these appliances have some utilitarian value, but only in homes that have broadband."

Whirlpool will offer its first networkable appliances later this year to residents of Playa Vista ***(www.playavista.com)***, a 13,000-unit planned community being built in West Los Angeles. Each home will be prewired for broadband Internet access, eliminating smart appliances' biggest hurdle. Whirlpool's refrigerator will have a portable tablet computer that plugs into a docking station built into the door. A wireless Internet connection serves up recipes and a standard Web browser.

It makes ice, too.

The Playa Vista homes will offer other options, such as smart ovens, microwaves, and dishwashers. "You can use the Web tablet in the den to preheat the oven and start the dishwasher," Duthie explains, adding that the company sees the potential, but isn't betting its reputation on the future of Internet-enabled appliances.

Whether or not Web-enabled appliances take off, one thing is already certain: Playing with these kitchen gadgets is sure to encourage between-meal snacking. ***—Kevin Savetz***